

MARCO BITTELLI

EDUCATION

- 2001 **Washington State University**, USA. Ph.D. in Soil Physics.
1998 **Washington State University**, USA. Master of Science in Soil Physics.
1994 **University of Bologna**, Italy. Laurea in Scienze Agrarie.

EMPLOYMENT and EXPERIENCES

- 2006–: **Assistant Professor**, Department of Agro-Environmental Science and Technology, University of Bologna, Bologna, Italy. Topics of Research: Use of ground penetrating radar (GPR) in hydrology and archaeology; Experimental and modelling analysis of shallow landslides; Numerical implementation of hydrological models at the field and watershed scale; Algorithms for mass and energy transport in porous media; Dielectric spectroscopy of porous material
- 2003–2006: **Adjunct Professor**, Department of Agro-Environmental Science and Technology, University of Bologna, Bologna, Italy. Topics of Research: Numerical implementation of hydrological models at the field and watershed scale; Algorithms for mass and energy transport in porous media; Dielectric spectroscopy of porous material
- 2004–: **Adjunct Scientist**, Department of Agro-Environmental Science and Technology, University of Bologna, Bologna, Italy. Topics of Research: Measuring Soil Hydraulic Conductivity through measurement of Soil Electrical Conductivity; Applications and testing of the Water Erosion Prediction Project (WEPP) model for runoff and erosion studies. Algorithms for mass and energy transport in porous media; shallow-landslides phenomena at different scales
- 2003–2006: **Teaching and Research Position**, Department of Agro-Environmental Science and Technology, University of Bologna, Bologna, Italy. Topics of Research: Measuring Soil Hydraulic Conductivity through measurement of Soil Electrical Conductivity; Algorithms for mass and energy transport in porous media; shallow-landslides phenomena at different scales
- 2002–2003: **Research Assistant**, Department of Agro-environmental Science, University of Bologna, Bologna, Italy. Topics of Research: Dielectric Spectroscopy of Frozen Soils; Experimental and Modelling of Soil Evaporation Processes.
- 2000–2001: **Visiting Scientist**, Institute of Environmental Physics, University of Heidelberg, Germany. Topics of Research: Time and Frequency Domain Analysis of Time Domain Reflectometer (TDR) waveforms for Dielectric Spectroscopy of Soil Constituents.
- 1996–2000: **Research and Teaching Assistant**, Department of Crop and Soil Sciences, Washington State University, Pullman, Washington. Topics of Research: Characterization of Particle Size Distribution in Soil; Numerical Algorithms for water flow in porous media; Methodologies to Measure Soil Water Retention Curve in Porous Media by using Soil Freezing Experiments.

SCHOLARSHIPS and GRANTS

- 2005 Ministero dell' Istruzione, dell' Universita' e della Ricerca (Ministry for Education, University and Research), Rome, Italy. Integrated Project: Innovative technologies for archaeological parks in the Mediterranean area. Technologies for the study and management of cultural remains: the case study of Tilmen Hoyuk, Turkey.
- 2003 European Commission (EC). Grant LIFE environment. Research Project: SLID, (Shallow Landslides Investigation Device), a tool to assess land susceptibility to shallow landslides.
- 2003 Ministero dell' Istruzione, dell' Universita' e della Ricerca (Ministry for Education, University and Research), Rome, Italy. Grant "Rientro dei Cervelli" (Brain Drain Project). Research Project: Water Quality Protection, Measuring Hydraulic Conductivity and Solute Diffusion Coefficients to Assess Water Flow and Pollutants Transport in Soils and Rocks"
- 1999 Washington Technology Center, Seattle, WA / Decagon Devices Inc., Pullman, WA. Grant: A low cost scanning thermodielectric analyzer to obtain freezing characteristics of foods, soils, and other materials.
- 1997 Washington Technology Center, Seattle, WA / Vanson Inc., Redmond, WA. Grant: Effect of foliar application of Chitosan on water use in field crops.
- 1995 European Community (EC) Scholarship: Linking Geographical Information Systems (ArcView) and Computer Models (CropSyst), for the assessment of water and solutes transport on large scale.

MEMBERSHIPS

- 2001-: European Geophysical Society
- 1999-2001: IGERT/NSF (Integrated Graduate Education Research Training/ National Science Foundation).
- 1998-: Soil Science Society of America

REVIEWER FOR THE FOLLOWING JOURNALS

- Water Resources Research
- Geoderma
- Australian Journal of Soil Science
- Soil Science Society of American Journal
- Geophysical Prospecting
- Cold Regions Science and Technology
- Geophysics

NATIONAL AND INTERNATIONAL COLLABORATIONS

- ARPA (Agenzia Regionale Protezione dell'Ambiente, Emilia Romagna).
- DiSTART, Dipartimento di Ingegneria delle Strutture, dei Trasporti, delle Acque, del Rilevamento del Territorio, Università di Bologna.
- Department of Archaeology, University of Bologna
- Department of Environmental Sciences, Rutgers University, New Brunswick, NJ, USA.
- Department of Biological Systems Engineering Washington State Univ., Pullman, WA, USA
- Department of Crop and Soil Sciences, Washington State Univ., Pullman, WA, USA.
- Institute of Environmental Physics, University of Heidelberg, Heidelberg, Germany.
- United States Department of Agriculture (USDA), Agricultural Research Service (USDA-ARS), National Soil Erosion Research Laboratory
- National Science Foundation, US (Project IGERT, Integrated Graduate Research Education Training).
- Decagon Devices Inc., Pullman, WA, USA.

THESIS

- 1994 Bittelli, M. Modellazione del Movimento dei Nitrati in Terreno Coltivato a Mais, in Funzione di Tecniche Colturali Diverse. Laurea in Scienze Agrarie. Università degli Studi di Bologna.
- 1998 Bittelli, M. Characterization of Particle Size Distribution in Soils. Master Thesis. Department of Crop and Soil Sciences. Washington State University.
- 2001 Bittelli, M. Solid, Water, Gas and Ice in Frozen Porous Media: Measurements and Implications. Ph.D. Dissertation. Department of Crop and Soil Sciences. Washington State University.

PUBLICATIONS

- 2007 (20) Pieri L., M. Bittelli, J. Q. Wu, S. Dun, D. C. Flanagan, P. Rossi Pisa, F. Ventura, and F. Salvatorelli. Using the Water Erosion Prediction Project (WEPP) Model to Simulate Field-Observed Runoff and Erosion in the Apennines Mountain Range, Italy. *Journal of Hydrology*, 336, 84-97.
- 2006 (19) Pieri, L., M. Bittelli and P. Rossi Pisa. Laser Diffraction, Transmission Electron Microscopy and Image Analysis to evaluate a Bimodal Gaussian Model for Particle Size Distribution in Soils. *Geoderma*, 135.
- 2006 (18) Marletto, V., L. Bottarelli, A. Pasquali and M. Bittelli. Sonde e antenne per valutare lo stato idrico dei suoli. *Agricoltura*, 2, 90-91.
- 2005 (17) Bittelli M., Measuring soil hydrological properties in different climatic scenario, in *Proc. of the Workshop on Climatic Analysis and Mapping for Agriculture, Consiglio Nazionale delle Ricerche-CNR*, Bologna, Italy.
- 2004 (16) Bittelli, M., M. Flury and G. S. Campbell and V. Schulz, Characterization of a spiral-shaped time domain reflectometry probe. *Water Resour. Res.*, 40, W09205, doi:10.1029/2004 WR003027.
- 2004 (15) Bittelli, M., M. Flury and K. Roth, Use of dielectric spectroscopy to estimate ice content in frozen porous media. *Water Resour. Res.*, 40, W04212, doi:10.1029/2003 WR002343.
- 2004 (14) Bittelli M., M. Flury, Determination of liquid water in frozen porous media, in *Proc. Soil Science Society of America, Seattle, WA, USA*.
- 2003 (13) Bittelli, M., M. Flury and G. S. Campbell, A thermo-dielectric analyser to measure the freezing and moisture characteristic of porous media. *Water Resour. Res.*, 39, 1041, doi:10.1029/2001 WR000930.
- 2003 (12) Bittelli M., M. Flury and K. Roth , Determination of Ice Content in Frozen Porous Media by Dielectric Spectroscopy, in *Proc. European Geophysical Society*, Nice, France.
- 2002 (11) Bittelli, M., Book review: Conceptual Models of Flow and Transport in the Fractured Vadose Zone. *Vadose Zone Journal*, 1:200-201, 2002.
- 2001 (10) Posadas, A. N. D., D. Gimenez, M. Bittelli, C. M. P. Vaz, and M. Flury, Multifractal Characterization of Soil Particle-Size Distributions, *Soil Sci. Soc. Am. J.*, 65(5), 1361-1367.
- 2001 (9) Bittelli M., M. Flury and G.S. Campbell , A Thermo-Dielectric Analyzer to Measure the Moisture Characteristic in Porous Media, in *Proc. European Society of Agronomy, Simp. Modeling Cropping System*, Florence, Italy.
- 2001 (8) Bittelli, M., M. Flury, G.S. Campbell, and E.J. Nichols, Reduction of transpiration through foliar application of Chitosan, *Agric. For. Meteorol.*, 107, 167-175.
- 2001 (7) Bittelli M., M. Flury and G.S. Campbell , A Thermo-Dielectric Analyzer to Measure the Moisture Characteristic in Porous Media, in *Proc. European Geophysical Society*, Nice, France.
- 1999 (6) Bittelli, M., G.S. Campbell and M. Flury. Characterization of Particle Size Distribution in Soil using a Fragmentation Model. *Soil Sci. Soc. Am. J.* 63:782-788.

- 1999 (5) Bittelli M., M. Flury and G.S. Campbell , Determination of Soil Moisture Characteristic from Soil Freezing Experiments, in *Proc. Soil Science Society of America, Salt Lake City, UT, 92*.
- 1999 (4) Donatelli, M., C.O. Stockle, R. Nelson, C. Gardi, M. Bittelli and G.S. Campbell. Using the Software CropSyst and Arcview in Evaluating the Effects of Management in Cropping Systems in Two Areas of the Low Po Valley, Italy. *Revista de Ciencias Agrarias*, 22, 87-108. Lisbon, Portugal.
- 1999 (3) Mathison J.B., M. Bittelli, O. Badini, M. Flury, G.S. Campbell and E.J. Nichols, Reduction of Evapotranspiration by Foliar Application of Chitosan, in *Proc. Crop Science Society of America, Salt Lake City, UT, 223*.
- 1998 (2) Campbell, G.S., M. Bittelli and J.B.Mathison, Soil Moisture Characteristic Estimated from TDR-measured Soil Freezing Characteristics, in *Proc. Soil Science Society of America, Baltimore, MA, 179*.
- 1998 (1) Bittelli M., G.S. Campbell, M. Flury and C.O. Stockle, Fractal Characterization of Particle Size Distribution in Soils, in *Proc. Soil Science Society of America, Baltimore, MA, 189*.

TECHNICAL REPORTS

- 2005 The TDR experimental station of San Pietro Capofiume (Ferrara, Italy): An integrated station for measuring soil water content. Committente: Agenzia Regionale Prevenzione e Ambiente (ARPA), Emilia Romagna.
- 2005 SOILPROP: A soil property database for hydrological studies at the regional scale. Committente: Agenzia Regionale Prevenzione e Ambiente (ARPA), Emilia Romagna.
- 2006 Interventi per il ripristino ambientale dell'area ex fornace di via Fiesso, Castenaso (Bo). Committente: Comune di Castenaso. Coordinatore: Prof. G. Vianello, Dipartimento di Scienze e Tecnologie Agroambientali.

LECTURES, SEMINARS AND WORKSHOPS

- 2007 Coordinator of the Joint International Master in Land and Water Conservation between his former University (Washington State University) and the University of Bologna. <http://www.dista.agrsci.unibo.it/master/index.php>
- 2006 Lectures within the workshop: Improving Water Use Efficiency in Mediterranean Agriculture. <http://www.distagenomics.unibo.it/wuemed/index.html>

AWARDS

- 2000 Soil Science Society of America. Editors Citation for Excellence in Manuscript Review.

REFERENCES

- Prof. Markus Flury. Department of Crop and Soil Sciences. Washington State University. Pullman. WA. USA (flury@mail.wsu.edu)
- Prof. Gaylon Campbell. Decagon Devices Inc. Pullman. WA. USA (gaylon@decagon.com)
- Prof. Claudio Stockle. Department of Biological Systems Engineering. Washington State University. Pullman. WA. USA. (stockle@wsu.edu)
- Prof. Kurt Roth. Institute of Environmental Physics. University of Heidelberg. Germany. (kurt.roth@iup.uni-heidelberg.de)
- Prof. Paola Rossi. Department of Agro-Environmental Science and Technology, University of Bologna, Bologna, Italy. (ppisa@agrsci.unibo.it)